IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-13 (Canceled)

Claim 14 (Currently Amended): A method of diagnosing a semiconductor processing apparatus ~~according to claim 13,~~for imparting plasma treatment to a sample arranged in a vacuum process chamber, including process gas introduction means for introducing a process gas into said vacuum process chamber, said method comprising:

imparting mechanical oscillation to said semiconductor processing apparatus;

detecting mechanical oscillation generated by imparting mechanical oscillation inside said semiconductor processing apparatus as signals; and

analyzing detected signals to diagnose whether said vacuum process chamber is normally assembled;

wherein the mechanical oscillation to said semiconductor processing apparatus is imparted by at least one oscillator, signals representing mechanical oscillations generated inside said semiconductor processing apparatus are detected by at least one detector, and ~~analyzing~~ the detected signals are analyzed to specify a position inside said vacuum process chamber ~~of said semiconductor processing apparatus~~ at which an abnormality has occurred.

Claim 15 (Previously Presented): A method of diagnosing a semiconductor processing apparatus according to claim 14, wherein a plurality of oscillators and a plurality of detectors are provided.

Claim 16 (Canceled):

Claim 17 (New): A method of diagnosing an internal condition of a vacuum process chamber in a semiconductor processing apparatus including a plasma generator which generates plasma inside said vacuum process chamber and a process gas introducer which introduces a process gas into said vacuum process chamber for plasma treatment of a sample arranged in said vacuum process chamber, said method comprising:

imparting, via at least one oscillator, mechanical oscillation to said semiconductor processing apparatus;

detecting, via at least one detector, mechanical oscillation imparted from the at least one oscillator and propagated through said vacuum process chamber, in said semiconductor processing apparatus; and

analyzing detected signals to diagnose whether said vacuum process chamber is normally assembled.

Claim 18 (New): A method of diagnosing an internal condition of a vacuum process chamber in a semiconductor processing apparatus including a plasma generator which generates plasma inside said vacuum process chamber and a process gas introducer which introduces a process gas into said vacuum process

chamber for plasma treatment of a sample arranged in said vacuum process chamber, said method comprising:

imparting, via at least one oscillator, mechanical oscillation to components inside said vacuum process chamber;

detecting, via at least one sensor, mechanical oscillation generated from said components inside said vacuum process chamber; and

determining a resonant frequency of said components by changing the frequency of imparted mechanical oscillation to diagnose a condition of said components.

Claim 19 (New): A method of diagnosing an internal condition of a vacuum process chamber in a semiconductor processing apparatus including a plasma generator which generates plasma inside said vacuum process chamber and a process gas introducer which introduces a process gas into said vacuum process chamber for plasma treatment of a sample arranged in said vacuum process chamber, said method comprising:

providing oscillation means and reception means juxtaposed with each other on a sidewall of said vacuum process chamber;

imparting, via said oscillation means, mechanical oscillation to said semiconductor processing apparatus;

detecting, via said reception means, mechanical oscillation generated by said oscillation means as signals; and

analyzing detected signals to evaluate the thickness of a film of reacted byproducts deposited to an inner wall of said vacuum process chamber.